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Left Central Retinal Artery.

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OF PHILADELPHIA.



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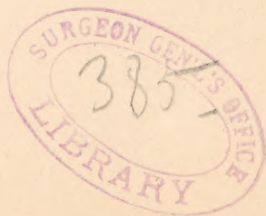
DESCRIPTION OF A CASE OF EMBOLISM OF THE LEFT CENTRAL RETINAL ARTERY.

BY CHARLES A. OLIVER, M.D.,
OF PHILADELPHIA.

The present case is added to ophthalmic literature, not as might be conjectured, to offer in any way another opportunity from which to further discuss the mooted question of differential diagnosis of thrombosis, embolism, or thrombosis and embolism of the retinal vessels by ophthalmoscopic appearances alone, which, as is well known, must remain *sub judice* and only answerable *post mortem*, until better differential points can be evolved by means of finer instruments of precision and more delicate methods of study, — but that a clinical picture which has been deemed sufficiently valuable to interest the student in such work, might be given for furtherance of researches in this direction. The title has been limited to that of embolism because the details of the eye-ground, when carefully read over, will be found to contain much more of the true significance and meaning of this type of disease than of thrombosis.

On the third of October, 1887, a young man aged twenty years, a weaver by occupation, came to me with the history of sudden failure of vision of the left eye twenty-six hours previously, unaccompanied by any ocular pain, phosphènes, or headaches; this having come on while the patient was slowly walking down a shaded road. He denied any previous serious illness, and to all appearances was a healthy and hearty man.

Upon examination it was found that the vision of the eye was reduced to very doubtful feeble light-perception in the outer field, while that of the right eye equaled full $\frac{3}{4}$. Upon double exposure both pupils were about two-thirds dilated, but that of the left side became more so when its fellow was shaded. The left iris was not so freely responsive to light-stimulus as the right, with seemingly no reflex to monocular efforts for accom-



modation for objects placed in the field remnant. Tension of each was normal. Ophthalmoscopic examination of the left eye without the use of a mydriatic, showed that the media were clear. The disc was seven by eight diameters in apparent magnitude, the long axis being at ninety degrees; the nerve substance itself was decidedly grayed in its tint. The edges were everywhere hidden by a fine and almost imperceptible thickening and marked œdema of the retinal fibres; this being less pronounced at the temporal side, where a faint trace of blackish pigment could be dimly seen through the œdematous swelling. The swelling of the retina extended for two or three diameters beyond the nerve entrance in all directions, and passed far out into the outer retinal periphery, embracing the entire macular region, where it seemed the densest and the thickest, giving the invaded region a grayish film-like appearance. All of the retinal arteries were reduced in size, especially the upper temporal, and held thin stationary columns of very pallid blood. Throughout the area of swelling the veins were contracted, becoming more and more so as they approached the nerve-entrance, but appeared more tortuous, nearer normal in size, and seemingly holding darker colored blood in the untouched peripheral area. Both sets of vessels were frequently lost to view in the swollen retina on the inner side of the ground. The small macular twigs so ordinarily seen in healthy eye-grounds, were invisible. Upon careful focusing, an extremely slow and sluggish current of broken bead-like segments of blood in the superior temporal vein could be plainly seen flowing continuously toward the disc, this being beautifully shown upon a bend of the vessel as it passed over the corresponding artery. No blood current or pulsation could be provoked in the arteries by artificial increase of intra-ocular pressure. The characteristic cherry-spot in the macular region was plainly seen, it being small in size and irregularly horizontal oval in shape. It was bounded by a fine network of minute branching vessels, which appeared to have no connection with any of the main stems. About two and a half disc diameters up and out from the disc, just above the first bifurcation of the superior temporal artery, there was a small hemorrhage; immediately below this there appeared a

curious small dark red swelling, apparently in the vessel itself. The fundus of the right eye was normal. Careful physical examination failed to reveal any other organic lesion. Ten grains of iodide of potassium three times daily were ordered.

On the following day all light perception had gone, although the œdema seemed less and the cherry spot was not so marked. The lower macular artery had become patulous, and carried a slow beaded current of bright colored blood, while the current in the upper temporal vein had become quicker in motion. The veins appeared slightly fuller than the arteries.

On the next day a slow broken current could be distinguished at the primary bend of the inferior temporal vein on the disc, which was somewhat slower in movement than in the upper vein. The small swelling in the upper temporal artery had partially disappeared, and the vessel began to carry a broad bead-like current of bright blood. Both macular twigs became visible, enlarged, and carried interrupted blood currents. Color of the cherry-colored macule had faded to a brownish hue. The density and area of the œdema had markedly increased; the outer edges of the disc being much more hazy. Vision still remained absolutely nothing.

One day later (the fourth day of the attack) the cherry-colored macule had almost gone, and the surrounding vessel twigs had nearly disappeared. The area of the œdema was increased on the inner side, and the disc edges were entirely hidden. The inferior nasal vein began to carry a broken current of blood which, as it slowly passed over a bend just before its passage into the main inferior stem, did not fill the lumen of the canal. Two small fresh blood extravasations in the fibres of the retina upon the disc along side of the macular vessels, and one small fresh blood massing on or in the substance of the disc above the primary distribution of the upper nasal vein, manifested themselves. A fine cholesterin crystal, about pin point in size, could now be seen in the œdematous retina, immediately above the upper macular artery, between the disc and macula. The bead-like blood columns could be observed in all of the vessels except the upper nasal artery, which still remained impervious; the currents in the arteries being at times hidden by the

œdema, and again reappearing before being lost to view in the peripheral endings of the vessels. At this time the veins appeared very much larger than the arteries. The œdema now gained its utmost height, being 2.50 D to the inner side of the macular region, in contradistinction to 1 D, the level of the normal eye-ground in the periphery, while its color, especially about the macular region, had assumed a greenish tinge (gas-light illumination). No vision whatever could be obtained by the strongest light stimulus.

Three days afterward the lower vessels were carrying full columns of blood, though no pulsation whatever could be obtained by pressure. The hemorrhages had almost disappeared. The macular region had become more irregular in outline and seemed filled with almost imperceptible grayish massings. The retina was still markedly œdematous, though the macular region appeared to be depressed from the general œdematous level. The two macular arteries still remained enlarged and were visible almost directly up to the macula itself, but the vascular circle seen primarily surrounding it, had entirely gone. The eye still continued blind.

Four days later (the eleventh day) the blood currents were all re-established with the appearance of two fresh hemorrhages upon the lower temporal artery and lower temporal vein. Nerve substance rapidly undergoing degeneration, this being mostly marked to the outer side, while the retinal œdema was becoming striated, corrugated, and flattened in places. Eye still remained "black-blind."

One month later (six weeks from when first seen) the nerve substance had greatly shrunk — to such an extent that the scleral rings could be plainly seen, both to the nasal and the temporal sides of the disc, with blackish pigment groupings beyond. The œdema had almost gone, there being but a few faint traces of the swelling left, its position being occupied by numerous small cholesterin crystal studdings. The macular region was converted into a large irregular degenerative area. Vision remained *nil*.

During the entire time the patient had persistently used the iodide of potassium. The physical examination was kindly

made by Dr. James H. Hutchinson, of Philadelphia, and the eye-grounds were seen by Drs. George C. Harlan and William F. Norris.

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